**Century WIRELINE SERVICES**

# GAMMA - CALIPER
# COMPENSATED DENSITY
# DHGH-14-24

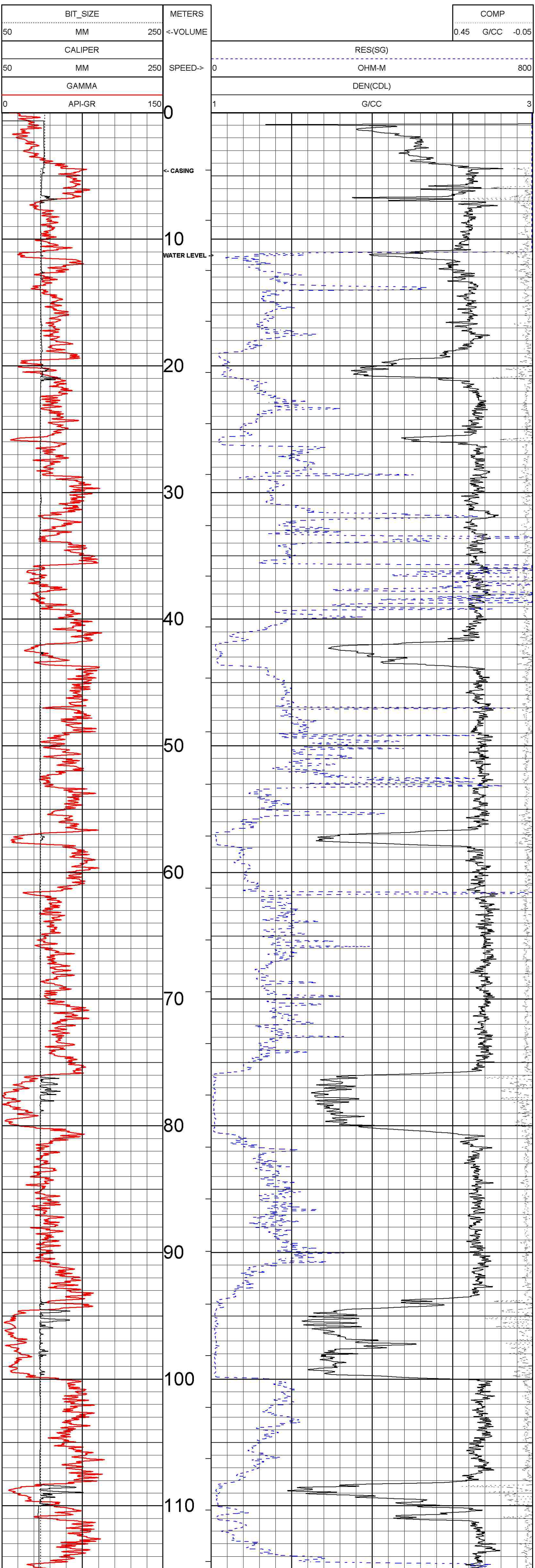
| | | | |
|---|---|---|---|
| COMPANY | :ATRUM COAL | OTHER SERVICES:<br>DENTP<br>DIP<br>NEUTP | |
| WELL | :DHGH-14-24 | | |
| FIELD | :GROUNDHOG | | |
| COUNTRY | :CANADA | | |
| PROVINCE | :BRITISH COLUMBIA | | |
| LSD | :GROUNDHOG | | |
| SECTION | :N/A | | |
| TOWNSHIP | :N/A | | |
| RANGE | :N/A | | |
| LICENSE NO. | :N/A | | |
| UNIQUE WELL ID. | :N/A | | |
| PERMANENT DATUM | :GL | ELEVATION KB | :N/A |
| LOG MEASURED FROM | :GL | ELEVATION DF | :N/A |
| DRL MEASURED FROM | :GL | ELEVATION GL | :N/A |
| DATE | :06/29/14 | RIG NUMBER | :2 |
| DEPTH DRILLER | :123.00 | LOGGER TD | : |
| BIT SIZE | :98.40 | ARRIVAL TIME | :10:00 |
| LOG TOP | :0.00 | DEPARTURE TIME | : |
| LOG BOTTOM | :126.53 | CIRC STOPPED | :N/A |
| CASING LOGGER | :4.42 | | |
| CASING DRILLER | :4.57 | | |
| CASING TYPE | :STEEL | | |
| BOREHOLE FLUID | :WATER | | |
| RM TEMPERATURE | :N/A | | |
| MUD RES | :N/A | | |
| MUD WEIGHT | :1.00 | | |
| WITNESSED BY | :N/A | | |
| RECORDED BY | :D. SINKWICH | | |
| REMARKS 1 | :VERTICAL | | |
| REMARKS 2 | : | | |

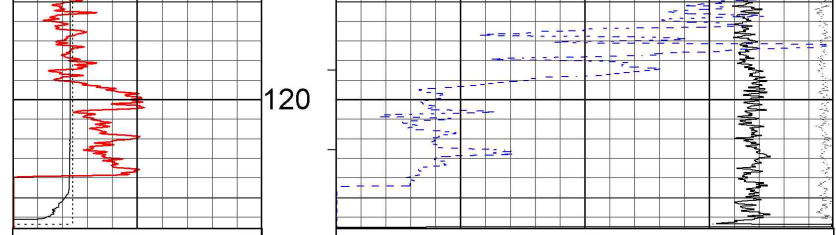
ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS

## DENSITY 1:200 DHGH-14-24 06/29/14

### LOG PARAMETERS

MATRIX DENSITY : 2.65
MAGNETIC DECL : 19.5
PRESENTATION NAME/DATE = Atrum_9239_(200 scale).0 06/07/2014
NEUTRON MATRIX : SANDSTONE
ELECT. CUTOFF : 75000
MATRIX DELTA T : 177
BIT SIZE : 98.40
VERSION = 3.64LG





0 API-GR 150
GAMMA
50 MM 250
CALIPER
50 MM 250
BIT_SIZE

SPEED->
<-VOLUME
METERS

1 G/CC 3
DEN(CDL)
0 OHM-M 800
RES(SG)

0.45 G/CC -0.05
COMP

## DENSITY 1:200 DHGH-14-24 06/29/14

### LOG PARAMETERS

MATRIX DENSITY : 2.65
NEUTRON MATRIX : SANDSTONE
MATRIX DELTA T : 177
MAGNETIC DECL : 19.5
ELECT. CUTOFF : 75000
BIT SIZE : 98.40
PRESENTATION NAME/DATE = Atrum_9239_(200 scale).0 06/07/2014
VERSION = 3.64LG

## DENSITY 1:50 DHGH-14-24 06/29/14

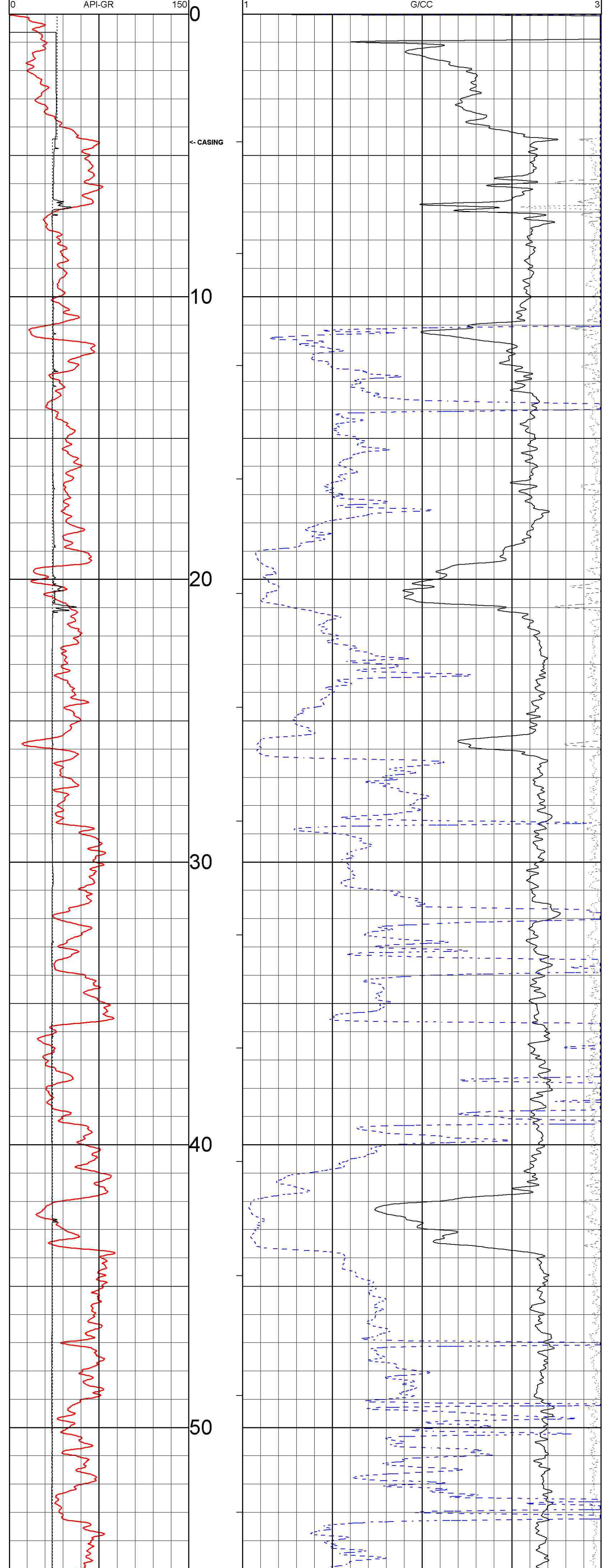
### LOG PARAMETERS

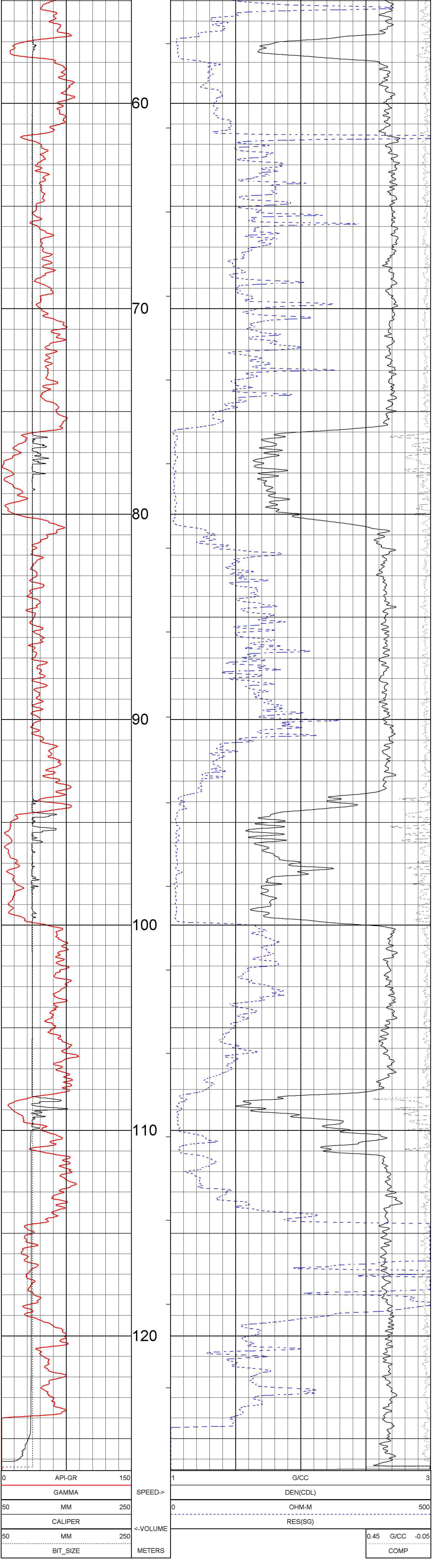
MATRIX DENSITY : 2.65
NEUTRON MATRIX : SANDSTONE
MATRIX DELTA T : 177
MAGNETIC DECL : 19.5
ELECT. CUTOFF : 75000
BIT SIZE : 98.40
PRESENTATION NAME/DATE = Atrum_9239.0 04/13/2014
VERSION = 3.64LG

BIT_SIZE
50 MM 250
CALIPER
50 MM 250
GAMMA
0 API-GR 150

METERS
<-VOLUME
SPEED->

COMP
0.45 G/CC -0.05
RES(SG)
0 OHM-M 500
DEN(CDL)
1 G/CC 3





# DENSITY 1:50 DHGH-14-24 06/29/14

## LOG PARAMETERS

| | | |
|---|---|---|
| MATRIX DENSITY : 2.65 | NEUTRON MATRIX : SANDSTONE | MATRIX DELTA T : 177 |
| MAGNETIC DECL : 19.5 | ELECT. CUTOFF : 75000 | BIT SIZE : 98.40 |
| PRESENTATION NAME/DATE = Atrum_9239.0 04/13/2014 | | VERSION = 3.64LG |

TOOL CALIBRATION DHGH-14-24 06/29/14 07:53
TOOL 9239C TM VERSION 2025
SERIAL NUMBER 2477

| | DATE | TIME | SENSOR | STANDARD | | RESPONSE | |
|---|---|---|---|---|---|---|---|
| 1 | Mar21,14 | 15:16:58 | GAMMA | 0.100 | [API-GR ] | 4.000 | [CPS] |
| | Mar21,14 | 15:16:58 | GAMMA | 545.000 | [API-GR ] | 589.000 | [CPS] |
| 2 | Jun14,13 | 09:36:44 | VOLTAGE | 26.400 | [MV ] | 8050.000 | [CPS] |
| | Jun14,13 | 09:36:44 | VOLTAGE | 229.200 | [MV ] | 35258.000 | [CPS] |
| 3 | Mar21,14 | 14:07:48 | CALIPER | 100.000 | [MM ] | 168300.000 | [CPS] |
| | Mar21,14 | 14:07:48 | CALIPER | 200.000 | [MM ] | 423180.000 | [CPS] |
| 4 | Mar21,14 | 14:58:29 | DEN(LS) | 1.620 | [G/CC ] | 8686.000 | [CPS] |
| | Mar21,14 | 14:58:29 | DEN(LS) | 2.612 | [G/CC ] | 1205.000 | [CPS] |
| 5 | Jun21,14 | 10:45:39 | DEN(SS) | 1.620 | [G/CC ] | 31905.000 | [CPS] |
| | Jun21,14 | 10:45:39 | DEN(SS) | 2.580 | [G/CC ] | 14021.000 | [CPS] |
| 6 | Jun14,13 | 08:59:07 | CALIPERL | Default | [CPS] | Default | [CPS] |
| | Jun14,13 | 08:59:07 | CALIPERL | Default | [CPS] | Default | [CPS] |
| 7 | Mar21,14 | 14:27:18 | CURRENT | 26.400 | [UA ] | 6623.000 | [CPS] |
| | Mar21,14 | 14:27:18 | CURRENT | 229.200 | [UA ] | 23884.000 | [CPS] |
| 8 | Jun14,13 | 08:59:07 | F | Default | [CPS] | | |
| 9 | Jun14,13 | 08:59:07 | X | Default | [CPS] | | |